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| Name: Leslee Lockwood & Lindy McCollam  Date: March 18, 2013 Lesson Title: *Pill Bugs’ Habitat* Grade/Level: 3rd Grade |
| Curriculum Standards |
| **Science**  **GLE 0307.Inq.3** Organize data into appropriate tables, graphs, drawings, or diagrams.  **✓0307.Inq.3** Maintain a science notebook that includes observations, data, diagrams, and explanations.  **GLE 0307.Inq.4** Identify and interpret simple patterns of evidence to communicate the findings of multiple investigations.  **✓0307.Inq.4** Analyze and communicate findings from multiple investigations of similar phenomena to reach a conclusion.  **GLE 0307.5.1** Explore the relationship between an organism’s characteristics and its ability to survive in a particular environment.  **✓0307.5.2** Investigate the connection between an organism’s characteristics and its ability to survive in a specific environment.  **✓0307.5.4** Determine how changes in an environmental variable can affect plants and animals of an area.  **SPI 0307.5.1** Investigate an organism’s characteristics and evaluate how these features enable it to survive in a particular environment.  **Math**  **GLE 0306.5.1** Organize, display, and analyze data using various representations to solve problems.  **✓ 0306.5.2** Construct a frequency table, bar graph, pictograph, or line plot of collected data.  **SPI 0306.5.1** Interpret a frequency table, bar graph, pictograph, or line plot.  **3.MD.3** Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented as scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*  **Technology**  **3.3.1** Students will use technology tools to enhance learning, increase productivity, and promote creativity.  **b.** Use the computer and technology resources as a learning tool.  **c.** Use the computer and technology resources as a writing tool.  **d.** Use paint and draw tools to create graphics. |
| Focus Questions/Big Idea/Goal (List all 3) |
| **Question(s):** What is habitat? What are pill bugs? What are some habitats that pill bugs can live in and why?  **Big Idea(s):** For students to define what a habitat is and be able to determine what habitats pill bugs can live in?  **Goal(s):** Students will be able to determine a pill bugs’ habitat by testing their response to different environmental factors. Students will be able to collect, graph, and interpret their data collected. |
| Lesson Objective(s) |
| Students will be able to:   1. Define habitat. 2. Determine pill bugs’ habitat by testing their response to selected environmental factors. 3. Collect, interpret, and graph data from an experiment. |
| Vocabulary/ Academic Language |
| * habitat: the type of environment in which an organism or group normally lives or occurs * environment: the area in which something exists or lives * isopod/pill bug/sow bug: having a convex, segmented, flexible body enabling it to curl into a ball when disturbed. In this sense also called *roly-poly*. * characteristics: a feature that helps to identify, tell apart, or describe recognizably   Students will be learning vocabulary through worksheets and while they are conducting their experiments. The students will be using these vocabulary words as they present their results to the classroom. |
| Material/Resources |
| * pill bugs * plastic container * paper towels * scotch tape * water (regular and salty) * droppers * plastic wrap * cardboard * plastic bag (clean and dark) * coffee grounds * cereal * paint brush * iPads (ShowMe app) * *What Will Pillbugs Choose?* worksheet * Science Log * *How to Use iPads* directions sheet |
| Assessment/Evaluation |
| **Formative***:*   * Teacher will be walking around the classroom observing the students work and assisting when needed.   **Summative:**   * Teacher will be reading the students’ Science Log to assess what each student learned from the pill bug experiment. |

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| Instruction  (Include a suggested time for each major activity)  90 minutes | List Questions for higher order thinking *These cannot be answered by yes or no.*  (Identify Bloom’s Level of Thinking) |
| Set/Motivator: (25 minutes)  Outside observation (10 minutes )   1. If the weather permits, the teacher will take the students outside to an area where there are rocks or stones. 2. The teacher will have students lift the rocks or stones and observe what they see. The teacher will allow time for them to explore on their own. The students will record their findings in their Science Log*.*   Class Discussion (15 minutes )   1. The teacher will then bring the students back into the classroom. 2. The teacher will create a discussion by asking students, “What did you find when you looked under the rocks/stones outside?” 3. The teacher will call on students who would like to share. 4. If no one mentioned the pill bug, the teacher will then show a picture of one and ask if anyone saw them. If it is mentioned during the discussion, then the teacher won’t need to ask this question. 5. The teacher will then tell students that they will be observing pill bugs and experimenting with different habitats. | 1. What happened after you looked under the rocks/stones outside? *[Level 1:Knowledge]* 2. Can you write in your own words your observations from outside in your journal? *[Level 2: Comprehension]* |
| Instructional Procedures/Learning Tasks**:** (55 minutes)  Preparation time (15 minutes)   1. The teacher will go over the vocabulary words to be sure that students understand their meaning in order to conduct the experiment. The students will fill out a graphic organizer where they must list the definition, an example, and a picture of each vocabulary word. 2. The teacher will break the students into groups to conduct the experiment together. 3. The teacher will pass out the *What Will Pillbugs Choose?*  handout for the experiment and go over it with the students of what they will be doing for their experiment. 4. The teacher will ask if students have any questions and allow time to answer them. 5. The teacher will give each table their pill bugs and go over the different environments written on the whiteboard. The students will be able to pick from crushed cereal vs coffee grounds, dark plastic vs light plastic, and salt water vs fresh water. 6. Students will then be able to collaborate to see which environment choice they would like to conduct their experiment with. 7. The teacher will call a table up one by one to get the materials needed for their experiment.   Experiment/Evaluation Time (20 minutes)   1. The students will conduct their experiment using the iPad to take pictures and record their observations on the worksheet. 2. Once students have finished their experiment, the students will create a presentation with the ShowMe app on the iPad. The students will record vocally what environment they picked, how the pill bugs reacted to it, and what their conclusion was. They will import their pictures that they took while discussing the observations on the app. Students will be given the *How to Use iPads* directions sheet so that they properly know how to use the iPads and ShowMe app.   Presentation Time (20 minutes)   1. The Students will present to the class their conclusion from the experiment using their ShowMe app. The teacher will record the data on the whiteboard as the students share. 2. As a class, the teacher will make a bar graph on the SMART board while the students discuss how it should be constructed. Once the graph has been constructed, each group will chart their data on the graph. | 1. Where in the environment are pill bugs found? [*Level 1: Knowledge]* |
| Closure: (10 minutes)   1. The teacher will ask students to take out their Science Log that they keep throughout the year. 2. The students will copy the bar graph into their Science Log, and write a summary of the experiment and their final conclusion of what kind of environment the pillbugs prefer. 3. Once the students have finished their entry, they will clean up their desks. | 1. What type of habitats did the pillbugs prefer? *[Level 1: Knowledge]* 2. What circumstances would change if a pill bug’s environment was altered? *[Level 6: Evaluation]* |

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| Adaptations to Meet Individual Needs:  **SPED Students**  These students will be working in groups with others which will help these students since they will have constant assistance with their classmates. The teacher will also be walking around to help the students and can be sure to check on these students more frequently.  **English Language Learners (ELL)**  Students will be working in a group which will help the students who aren’t completely fluent with English. The groups will be made in order for these students to be best assisted.  **Gardner’s Learning Styles**  **Visual-Spatial:** Students will be using the iPad to create a visual representation of the information that they have collected from their experiments. As a class, there will be a graph created to compare the results.  **Bodily-Kinesthetic:** Students will be using their hands and tools to conduct an experiment.  **Musical:** There will be no music involved in this assignment. It could be incorporated as students are conducting their experiments though.  **Interpersonal:** Students will be working in groups as they come up with how they want to conduct their experiment, as well as doing it. As a class, they will decide how to properly graph the results of the entire class.  **Intrapersonal:** Students will be responding in their own learning logs as they observe what happens.  **Linguistic:** Students will be orally presenting in front of the class once they finish their experiment.  **Logical-Mathematical:** The class will have to decide how to properly prepare a graph to best represent the final results.  Management/Safety Issues:   * The teacher needs to watch the students when handling the pill bugs. Students need to be monitored that they are keeping the pill bugs in a moist environment at all times. The teacher needs to make sure that the students are not abusing (poking, tossing, or mishandling) the pill bugs in any way. * The teacher needs to monitor the students when using the iPads. Students need to monitored that they are staying on task, not playing games and surfing the internet, and not mishandeling the iPads. |
| Rationale/Theoretical Reasoning:  Vygotsky always talked about scaffolding when it comes to students learning throughout his theory. Most children don’t know what pill bugs are when you ask them. Now when you ask them what a roly-poly is, they can launch into stories about how they have played with them before. In this lesson, we are taking what they already know about pill bugs and building on it. This lesson has them to think less about what pill bugs are and more about where pill bugs live.  Data collection and analysis tools are tools that allow users to gather and analyze data. The ShowMe app allows students to collect and analyze their data in one place. The ShowMe app can also be classified as a multimedia creation tool. A multimedia creation tool allows users to combine audio, video, music, pictures, drawings, or any combination into a final product. With the ShowMe app, students will be able to store their voice recordings, pictures, and graphs from their experiment in one place to later share in their presentations. |
| References:  Burnett, Robin. (1999). What Will Pillbugs Choose?. *The Pillbug Project: A Guide to Investigation* (pp 85-86)*.* Arlington: National Science  Teacher Association. |
| Reflections/Future Modifications:*To what extent did the class learn what you intended them to learn? What will be your next steps instructionally? What did you learn about your students as learners? What have you learned about yourself as a teacher?* |